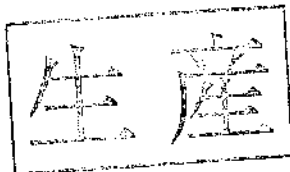


DOLMAR



English / Italiano / Spanish

A

Brush Cutter

Decespugliatore

Desbrozadora

MS-220, MS-2200

MS-250, MS-2500

Grass trimmer

Strimmer

Desbrozadora

MS-221, MS-2201

MS-251, MS-2501

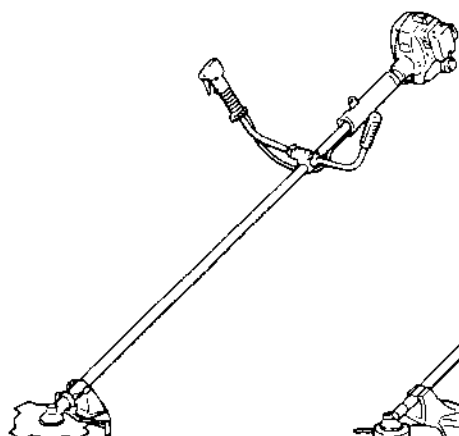
LT-250

INSTRUCTION MANUAL

ISTRUZIONI D'USO

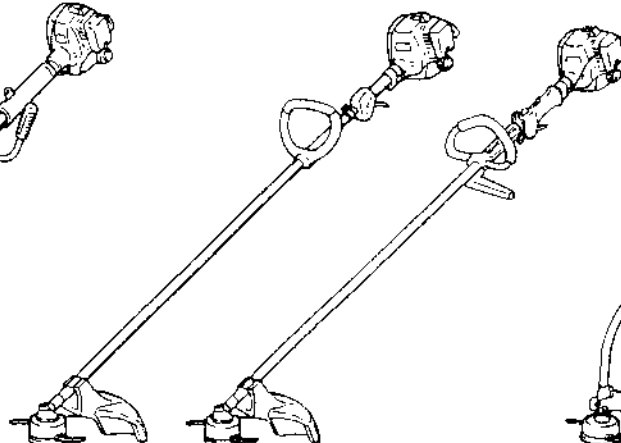
MANUAL DE INSTRUCCIONES

MS-220 / MS-250
MS-2200 / MS-2500



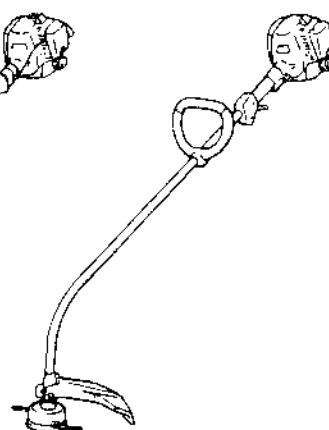
Loop handle type
Tipo con manico ad anello
Manubrio tipo cerrado

MS-221 / MS-251
MS-2201 / MS-2501



Loop handle(CEN)type
Tipo con manico ad anello(CEN)
Manubrio tipo cerrado(CEN)

LT-250



Important:

Read this instruction manual carefully before putting the brush cutter or grass trimmer into operation and strictly observe the safety regulations! Preserve instruction manual carefully!

Importante:

Prima di far funzionare il decespugliatore o tagliabordi, leggete attentamente questo manuale di istruzioni e osservate scrupolosamente gli avvertimenti sulla sicurezza.

Conservate questo manuale di istruzioni in un luogo sicuro.

Importante:

Lea cuidadosamente este manual de instrucciones antes de poner en funcionamiento la desbrozadora, y cumpla estrictamente las normas de seguridad.

Guarde cuidadosamente este manual de instrucciones.

Thank you very much for purchasing the DOLMAR Brush Cutter or Grass Trimmer. We are pleased to recommend to you the DOLMAR Brush Cutter or Grass Trimmer which is the result of a long development programme and many years of knowledge and experience. Please read the booklet that refers to in detail the various points that will demonstrate its outstanding performance. This will assist you to obtain the best possible result from your DOLMAR Brush Cutter or Grass Trimmer.



Table of Contents

	Page
Symbols	2
Safety instruction	3 - 6
Technical data	7 - 8
Designation of parts	9
Assembly of engine and drive shaft	10 - 12
Mounting of handle	12 - 13
Mounting of protector	14
Mounting of cutter blade or nylon cutting head	15
Fuels / Refuelling	16
Correct handling of machine	17
Putting into operation	18 - 19
Idle adjustment	20
Replacing the nylon cord	21
Servicing instructions	22 - 23
Storage	24

Symbols

You will note the following symbols when reading the instruction manual.



Read instruction manual



**Wear eye and ear protection
(for Grass Trimmer)**



**Take particular
Care and Attention**



**Wear protective helmet,
eye and ear protection
(for Brush Cutter only)**



Forbidden



**Do not use metal blades
(for Grass Trimmer only)**



Keep distance



Top permissible Tool speed



Flying object hazard



Fuel and oil mixture



No smoking



Engine-manual start



No naked flame



Emergency stop



**Protective gloves
must be worn**



First aid



Kickback



Recycling



**Keep the area of operation clear
of all persons and pets**



EC-mark

SAFETY INSTRUCTIONS

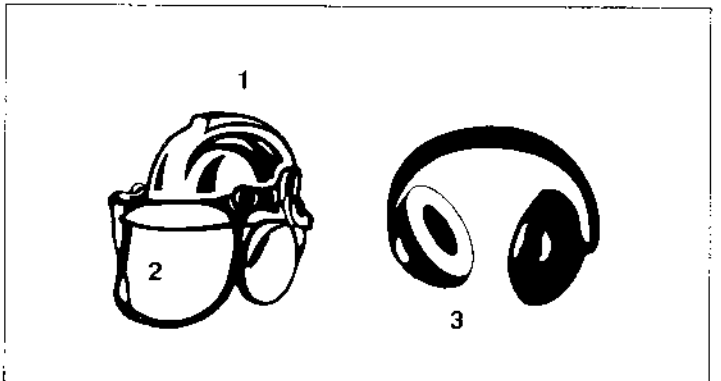
General Instructions

- To ensure correct operation, the user has to read this instruction manual to make himself familiar with the handling of the brush cutter or grass trimmer. Users insufficiently informed will risk danger to themselves as well as others due to improper handling.
- It is recommended only to lend the brush cutter to people who have proven to be experienced with brush cutters or grass trimmers. Always hand over the instruction manual.
- First users should ask the dealer for basic instructions to familiarise oneself with the handling of an engine powered cutter.
- Children and young persons aged under 18 years must not be allowed to operate the brush cutter or grass trimmer. Persons over the age of 16 years may however use the device for the purpose of being trained only whilst under supervision of a qualified trainer.
- Use brush cutters or grass trimmers always with the utmost care and attention.
- Operate the brush cutter or grass trimmer only if you are in good physical condition. Perform all work calmly and carefully. The user has to accept liability for others.
- Never use the brush cutter or grass trimmer after consumption of alcohol or drugs.



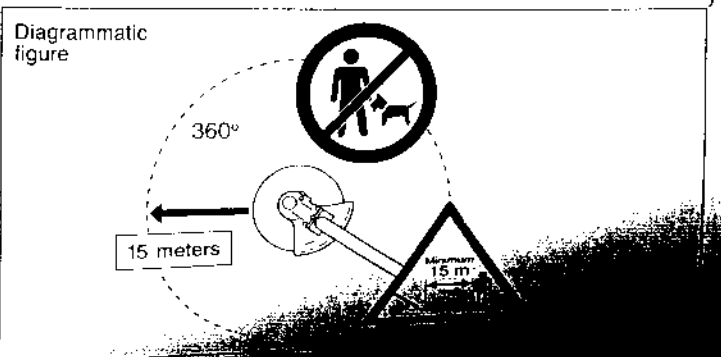
Personal protective equipment

- The clothing worn should be functional and appropriate, i.e. it should be tight-fitting but not cause hindrance. Do not wear either jewelry or clothing which could become entangled with brushes or shrubs.
- In order to avoid either head-, eye-, hand- or foot injuries as well as to protect your hearing the following protective equipment and protective clothing must be used during operation of the brush cutter or grass trimmer.
- Always wear a helmet when working in the forest. The protective helmet (1) is to be checked at regular intervals for damage and is to be replaced at the latest after 5 years. Use only approved protective helmets.
- The visor (2) of the helmet (or alternatively goggles) protects the face from flying splinters and stones. During operation of the brush cutter or grass trimmer always wear goggles, or a visor to prevent eye injuries.
- Wear adequate noise protection equipment to avoid hearing impairment (ear muffs (3), ear plugs etc.).
- The work overalls (4) protect against flying stones and splinters. We strongly recommend that the user wear work overalls.
- Special gloves (5) made of thick leather are part of the prescribed equipment and must always be worn during operation of the brush cutter or grass trimmer.
- When using the brush cutter or grass trimmer, always wear sturdy shoes (6) with a non-slip sole. This protects against injuries and ensures a good footing.



Starting up the brush cutter or grass trimmer

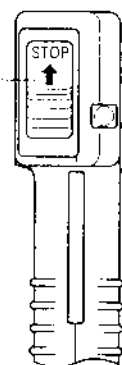
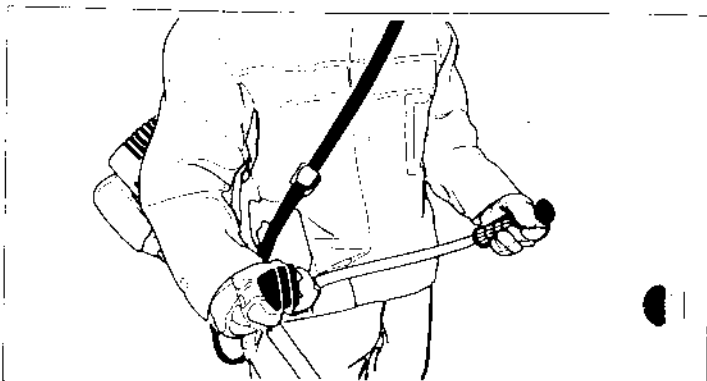
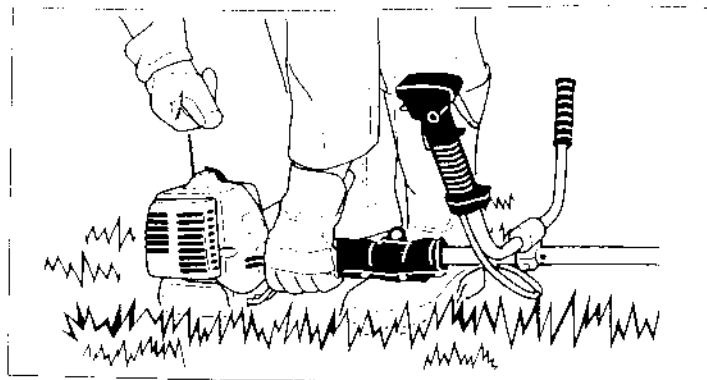
- Please make sure that there are no children or other people within a working range of 15 meters also pay attention to any animals in the working vicinity.
- Before use always check that the brush cutter or grass trimmer is safe for operation:
Check the security of the cutting tool, the throttle lever for easy action and check for proper functioning of the throttle lever lock. Rotation of the cutting tool during idling speed is not allowed. Check for clean and dry handles and test the function of the start/stop switch.



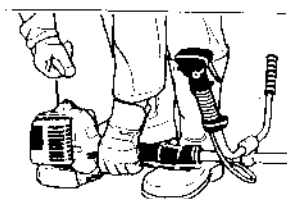
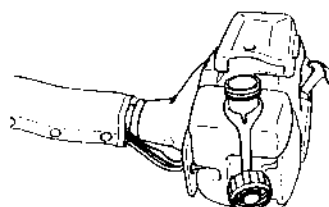
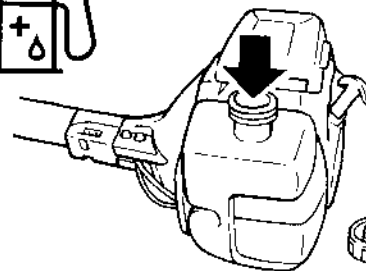
- Start the brush cutter or grass trimmer only in accordance with the instruction. Do not use any other methods for starting the engine.
- Use the brush cutter or grass trimmer and the tools only for such applications as specified.
- Start the brush cutter or grass trimmer engine only, after the entire assembly is done. Operation of the device is only permitted after all the appropriate accessories are attached!
- Before starting make sure that the cutting tool has no contact with hard objects such as branches, stones etc.
- The engine is to be switched off immediately in case of any engine problems
- Should the cutting tool hit stones or other hard objects, immediately switch off the engine and inspect the cutting tool.
- Inspect the cutting tool at short regular intervals for damage (detection of hairline cracks by means of tapping - noise test).
- Operate the brush cutter or grass trimmer only with the shoulder strap attached which is to be suitably adjusted before putting the brush cutter or grass trimmer into operation. It is essential to adjust the shoulder strap according to the user's size to prevent fatigue occurring during use. Never hold the cutter with one hand during use.
- Operate the brush cutter or grass trimmer in such a manner as to avoid inhalation of the exhaust gases. Never run the engine in enclosed rooms (risk of gas poisoning). Carbon monoxide is an odorless gas.
- Switch off the engine when resting and when leaving the brush cutter or grass trimmer unattended, and place it in a safe location to prevent danger to others or damage to the machine.
- Never put the hot brush cutter or grass trimmer onto dry grass or onto any combustible materials.
- The cutting tool has to be equipped with it's appropriate guard. Never run the cutter without this guard.
- All protective installations and guards supplied with the machine must be used during operation.
- Never operate the engine with faulty exhaust muffler.
- Shut off the engine during transport.
- During transport over long distances the tool protection included with the equipment must always be used.
- Ensure safe position of the brush cutter or grass trimmer during car transportation to avoid fuel leakage.
- When despatching the brush cutter or grass trimmer, ensure that the fuel tank is completely empty.

Refuelling

- Shut off the engine during refuelling, keep away from naked flames and do not smoke.
- Avoid skin contact with mineral oil products. Do not inhale fuel vapor. Always wear protective gloves during refuelling. Change and clean protective clothing at regular intervals.
- Take care not to spill either fuel or oil in order to prevent soil contamination (environmental protection). Clean the brush cutter or grass trimmer immediately after fuel has been spilt.
- Avoid any fuel contact with your clothing. Change your clothing instantly if fuel has been spilt on it (a danger to life).
- Inspect the fuel cap at regular intervals making sure that it can be securely fastened.
- Carefully tighten the locking screw of the fuel tank. Change location to start the engine (at least 3 meters away from the place of refuelling).
- Never refuel in closed rooms. Fuel vapors accumulate at ground level (risk of explosions).
- Only transport and store fuel in licensed containers. Make sure the fuel stored is not accessible to children.



- Resting
- Transport
- Refuelling
- Maintenance
- Tool Replacement



3 meters

Method of operation

- Only use the brush cutter or grass trimmer in good light and visibility. During the winter season beware of slippery or wet areas, ice and snow (risk of slipping). Always ensure a safe footing.
- Never cut above shoulder height.
- Never stand on a ladder and run the brush cutter or grass trimmer.
- Never climb up into trees to perform cutting operation with the brush cutter or grass trimmer.
- Never work on unstable surfaces.
- Remove sand, stones, nails etc. found within the working range. Foreign particles may damage the cutting tool and can cause dangerous kickbacks.
- Before commencing cutting, the cutting tool must have reached full working speed.

Kickback

- When operating the brush cutter, uncontrolled kickback may occur.
- This is particularly the case when attempting to cut within a blade segment between 12 and 2 o'clock.
- Never apply this segment of the brush cutter to solids, such as bushes and trees, etc., having a diameter in excess of 3 cm.
- The brush cutter will then be deflected at great force with the attendant risk of injuries.
- Never apply the brush cutter within a segment between 12 and 2 o'clock.

Kickback prevention

To avoid kickbacks, observe the following:

- Operation within a blade segment between 12 and 2 o'clock presents positive hazards, especially when using metal cutting tools.
- Cutting operations within a blade segment between 11 and 12 o'clock, and between 2 and 5 o'clock, must only be performed by trained and experienced operators, and then only at their own risk.
- Easy cutting with almost no kickback is possible within a blade segment between 8 and 11 o'clock.

Cutting Tools

Employ only the correct cutting tool for the job in hand.

Nylon cutting head:

Exclusively designed for cutting along wall, fences, grass edges, trees, posts etc. (supplementing the grass mower).

Star blade:

For cutting thick materials, such as weed, high grass, bushes, shrubs, underwood, thicket etc. (max. 2 cm dia. thickness). Perform this cutting work by swinging the brush cutter evenly in half-circles from right to left (similar to using a scythe).

NOTE:

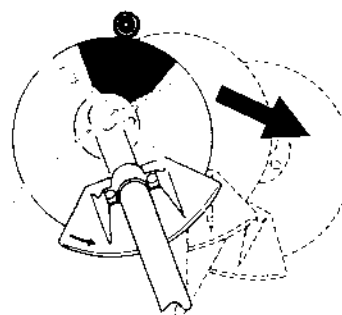
For LT-250, swing the machine from left to right to perform this cutting work.

Maintenance instructions

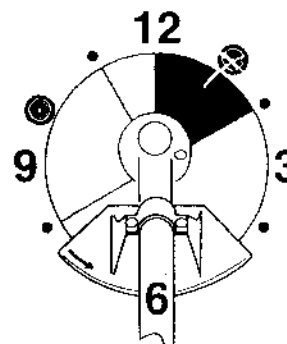
- The condition of the cutter, in particular of the cutting tool of the protective devices and also of the shoulder strap must be checked before commencing work. Particular attention is to be paid to the cutting blades which must be correctly sharpened.
- Turn off the engine and remove spark plug connector when replacing or sharpening cutting tools, and also when cleaning the cutter or cutting tool.



Caution:
Kickback



Diagrammatic
figure



Diagrammatic
figure



- Never straighten or weld damaged cutting tools.
- Operate the brush cutter or grass trimmer with as little noise and contamination as possible. In particular check the correct setting of the carburetor.
- Clean the brush cutter or grass trimmer at regular intervals and check that all screws and nuts are well tightened.
- Never service or stone the brush cutter or grass trimmer in the vicinity of naked flames.
- Always store the brush cutter or grass trimmer in locked rooms and with an emptied fuel tank.

Observe the relevant accident prevention instructions issued by the relevant trade associations and by the insurance companies. Do not perform any modifications on the brush cutter or grass trimmer as this will endanger your safety.

The performance of maintenance or repair work by the user is limited to those activities as described in the instruction manual. All other work is to be done by Authorized Service Agent.

Use only genuine spare parts and accessories released and supplied by DOLMAR.

Use of non-approved accessories and tools means increased risk of accidents. DOLMAR will not accept any liability for accidents or damage caused by the use of non-approved cutting tools and fixing devices of cutting tools, or accessories.

First aid

In case of accident make sure that a first-aid box is available in the vicinity of the cutting operations. Immediately replace any item taken from the first aid box.

When asking for help, please give the following information:

- Place of accident
- What happened
- Number of injured persons
- Kind of injuries
- Your name

Packaging

The DOLMAR brush cutter or grass trimmer will be delivered in two protective cardboard boxes to prevent transport damage. Cardboard is a basic raw material and is therefore consequently reuseable or suitable for recycling (waste paper recycling).



EU Conformity Declaration

The undersigned, Shigeharu Kominami and Rainer Bergfeld, as authorized by DOLMAR GmbH, Jenfelder Str. 38, 22045 Hamburg, Germany, declare that the DOLMAR Machines,

Type : MS-220, MS-221, MS-250, MS-251, LT-250
MS-2200, MS-2201, MS-2500, MS-2501

manufactured by Robin conforms to the basic safety and health requirements of the applicable EU guidelines:

EU Machine guideline 98/37/EG
EU EMC guideline 89/336/EWG (modified by 91/263/EWG, 92/31/EWG and 93/68/EWG)
Noise Emission guideline 2000/14/EC

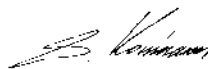
The most important standards applied to properly meet the requirements of the above EU guidelines were: EN11806, CISPR 12, EN50082-1,

Technical Documentation: Fuji Robin Industries Ltd.
35 OHOKA, NUMAZU - CITY,
SHIZUOKA - PREF, 410-8535 JAPAN
Hiroshi Hirooka
General Manager, Engineering
Department

Guaranteed Sound Power:
113 dB (LT-250)
105 dB (MS-220, MS-250, MS-2200, MS-2500)
114 dB (MS-221, MS-251, MS-2201, MS-2501)

Measured Sound Power:
102 dB (MS-220, MS-250, MS-2200, MS-2500)
110 dB (LT-250, MS-221, MS-251, MS-2201, MS-2501)

Hamburg, 01.06.04
For DOLMAR GmbH


Shigeharu Kominami
Managing Director


Rainer Bergfeld
Managing Director

Technical data MS-220, MS-221, MS-2200, MS-2201

Model			MS-220		MS-221		MS-2201		
			MS-2200				MS-2201		
			U handle		Loop handle		Loop handle (CFN)		
Dimensions: length x width x height (without plastic guard)			mm	1,725 x 600 x 385		1,725 x 335 x 345		1,725 x 335 x 397	
Mass (without plastic guard and cutting blade)			kg	4.0		3.9		4.5	
Volume (fuel tank)			cm ³	500					
Engine displacement			cm ³	21.7					
Maximum engine performance			kW at 1/min	0.67 kW at 7,000 1/min					
Engine speed at recommended max. spindle speed			1/min	8,800					
Maximum spindle speed (corresponding)			1/min	6,000					
Fuel consumption			kg/h	0.46					
Specific fuel consumption			g/kWh	691					
Idling speed			1/min	2,600					
Clutch engagement speed			1/min	3,600					
Carburetter (Diaphragm-carburetter)			type	WALBRO WYL					
Ignition system			type	Solid state ignition					
Spark plug			type	NGK BMR7A					
Electrode gap			mm	0.6 — 0.7					
Vibration per ISO 7916 ¹⁾	Right handle (Rear grip)	Idling	m/s ²	2.6		—		6.1	
		Racing or W.O.T	m/s ²	5.3		—		4.7	
	Left handle (Front grip)	Idling	m/s ²	3.6		—		6.1	
		Racing or W.O.T	m/s ²	4.4		—		6.1	
Sound pressure level average to ISO 7917 ¹⁾			db (A)	90.2		—		94.9	
Sound power level average to ISO 10884 ¹⁾			db (A)	99.8		—		105.0	
Mixture ratio (Fuel: DOLMAR 2-stroke oil)				50 : 1					
Gear ratio				13/19					

1) The data are for reference only.

14/18

1) The data take equally into account the idling and racing or wide open slot speed operating modes.

2) Some machines are not in compliance with CEN standard.

(CE label is put on machines with are in compliance with CEN standard).

Technical data MS-250, MS-251, MS-2500, MS-2501, LT-250

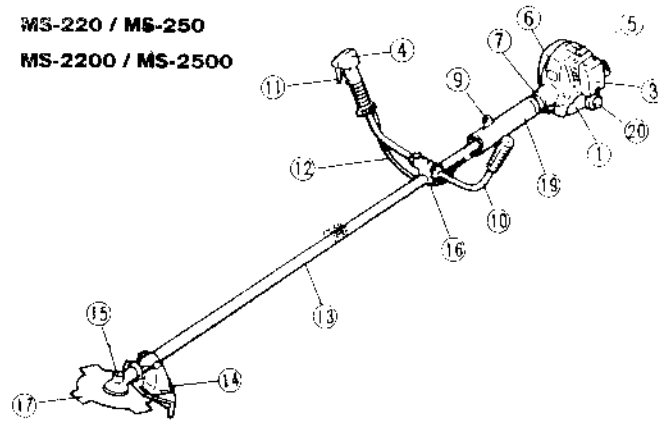
Model			MS-250		MS-251		MS-2501		LT-250		
			MS-2500								
			U handle		Loop handle		Loop handle (CEN)		Loop handle		
Dimensions: length x width x height (without plastic guard)			mm	1,725 x 600 x 385		1,725 x 335 x 345		1,725 x 335 x 397		1,490 x 300 x 485	
Mass (without plastic guard and cutting blade)			kg	4.0		3.9		4.5		4.2	
Volume (fuel tank)			cm ³	500							
Engine displacement			cm ³	24.5							
Maximum engine performance			kW at 1/min	0.73 kW at 7,000 1/min							
Engine speed at recommended max. spindle speed			1/min	8,800						7,000	
Maximum spindle speed (corresponding)			1/min	6,000						7,000	
Fuel consumption			kg/h	0.54						0.53	
Specific fuel consumption			g/kWh	735						725	
Idling speed			1/min	2,600							
Clutch engagement speed			1/min	3,600							
Carburetter (Diaphragm-carburetter)			type	WALBRO WYL							
Ignition system			type	Solid state ignition							
Spark plug			type	NGK BMR7A							
Electrode gap			mm	0.6 — 0.7							
Vibration per ISO 7916 ¹⁾	Right handle (Rear grip)	Idling	m/s ²	2.6 / 2.4		—		7.2 / 6.1		3.8	
		Racing or W.O.T	m/s ²	4.5 / 4.7		—		5.2 / 8.0		9.6	
	Left handle (Front grip)	Idling	m/s ²	3.2 / 3.1		—		7.3 / 6.2		9.0	
		Racing or W.O.T	m/s ²	4.6 / 4.2		—		5.9 / 8.4		8.7	
Sound pressure level average to ISO 7917 ¹⁾			db (A)	91.5 / 87.7		—		94.7 / 93.6		95.7	
Sound power level average to ISO 10884 ¹⁾			db (A)	102.0 / 97.7		—		105.0 / 104.0		106.0	
Mixture ratio (Fuel: DOLMAR 2-stroke oil)				50 : 1							
Gear ratio				13/19						14/18	

1) The data take equally into account the idling and racing or wide open throttle speed operating modes.

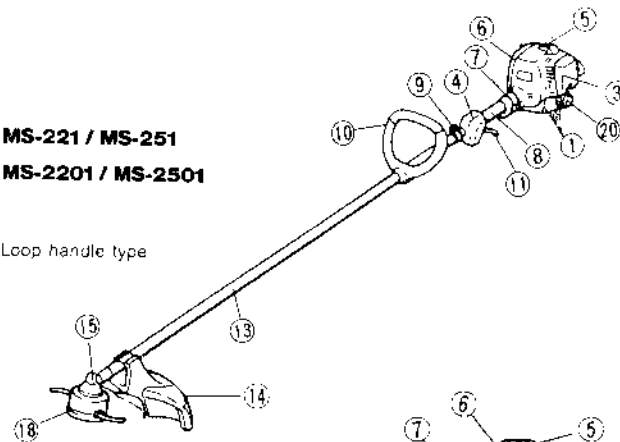
2) Some machines are not in compliance with CEN standard.

(CE label is put on machines which are in compliance with CEN standard).

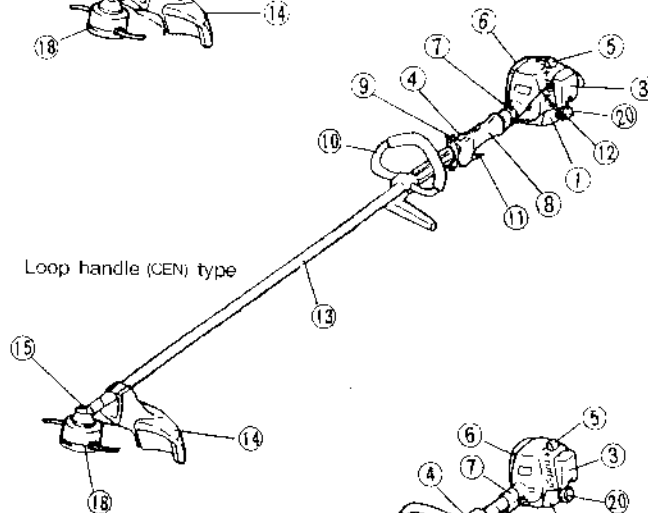
DESIGNATION OF PARTS

MS-220 / MS-250
MS-2200 / MS-2500MS-221 / MS-251
MS-2201 / MS-2501

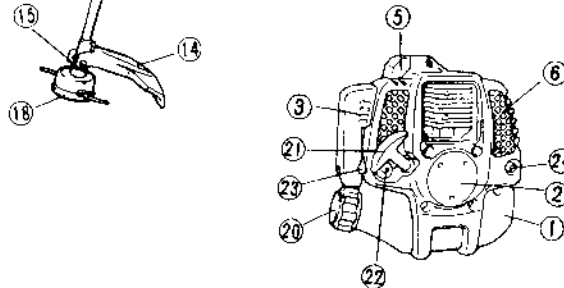
Loop handle type



Loop handle (CEN) type



LT-250



DESIGNATION OF PARTS

- | | |
|----|-----------------------|
| 1 | Fuel Tank |
| 2 | Recoil Starter |
| 3 | Air Cleaner |
| 4 | ON-OFF Switch |
| 5 | Spark Plug |
| 6 | Muffler |
| 7 | Holder Case |
| 8 | Rear Grip |
| 9 | Hanger |
| 10 | Handle |
| 11 | Throttle Lever |
| 12 | Throttle Cable |
| 13 | Drive Shaft |
| 14 | Protector |
| 15 | Gear Case / Head Case |
| 16 | Handle Joint |
| 17 | Brush Blade |
| 18 | Nylon Cutting Head |
| 19 | Waist Pad |
| 20 | Fuel Tank Cap |
| 21 | Starter Knob |
| 22 | Primer Pump |
| 23 | Choke Lever |
| 24 | Exhaust Pipe |
| 25 | Shoulder Strap |

Assembling of engine and drive shaft



CAUTION:

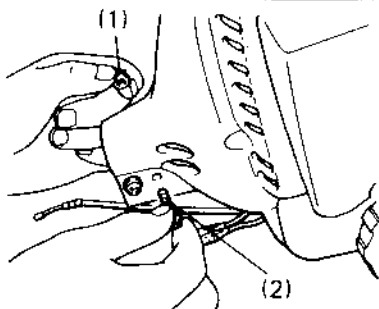
Before doing any work on the brush cutter or the grass trimmer, always switch off the motor and pull the spark plug connector off the spark plug. Always wear protective gloves!

CAUTION:

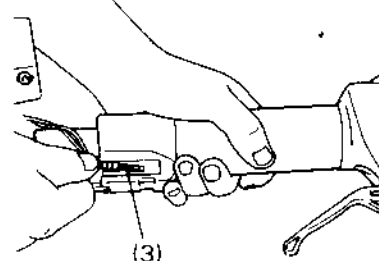
Start the brush cutter or the grass trimmer only after having assembled it completely.

For machines with Loop handle

- Insert the nuts M5 (1) into the hex holes in the holder case. Insert the screws M5 x 30 (2) through the opposite holes and semi-tighten the screws M5 x 30.



- Insert the nuts M5 (1) into the hex holes in the holder case. Insert the screws M5 x 30 (2) through the opposite holes and semi-tighten the screws M5 x 30.

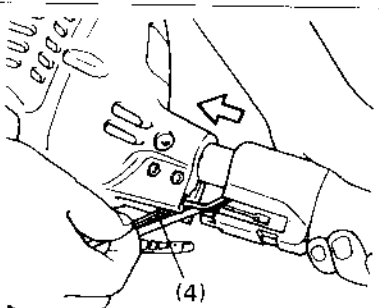


- Insert the shaft into the holder case fully until the grip end reaches the holder case while passing the throttle wire and the switch cords (4) through the slot in the holder case.

NOTE:

Match the square drive of the inner shaft to the square hole inside the holder case by slightly rotating the drive shaft or the support washer on the head case, and you can insert the drive shaft into the holder case smoothly.

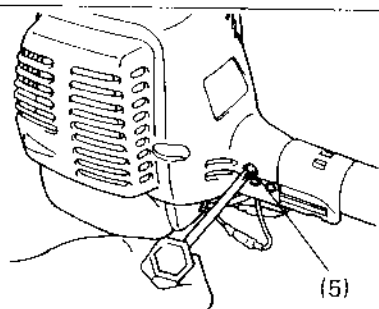
Be cautious not to allow the switch cords to be pinched between the holder case and the grip end.



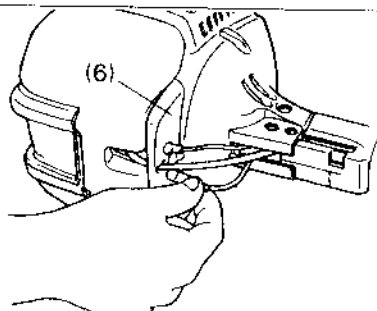
- Match the hole in the holder case to the hole in the inner shaft and insert the screw M5 x 8 through the holes. Then tighten the screw M5 x 8 and the screws M5 x 30 (5).

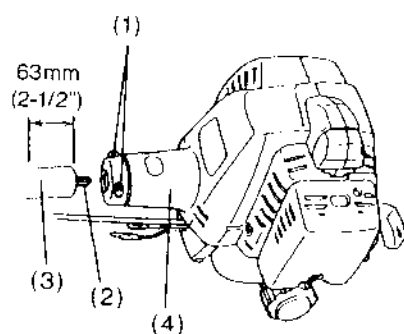
NOTE:

Squeeze the throttle lever to make sure that the throttle wire moves smoothly.



- Connect the switch cords to the two cords from the engine by inserting one into the other. Insert them through the holes in the cover (6).





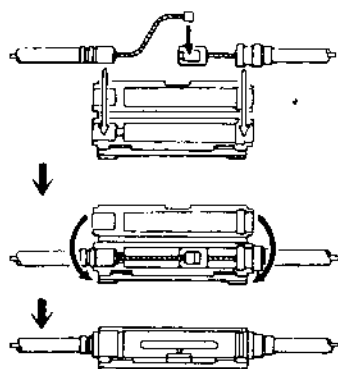
For machines with U handle

- Loosen the screws M5×18 and insert the drive shaft into the holder case.

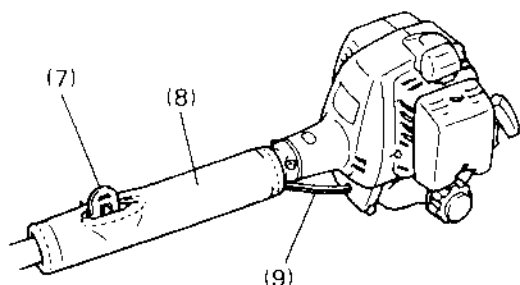
(Note)

Always insert the drive shaft into the holder case fully (approx. 63mm; 2-1/2"). If the inner shaft resists full insertion of the drive shaft, try to insert it again after slightly rotating the drive shaft or the support washer on the gear case to match the inner shaft to the hole inside the holder case.

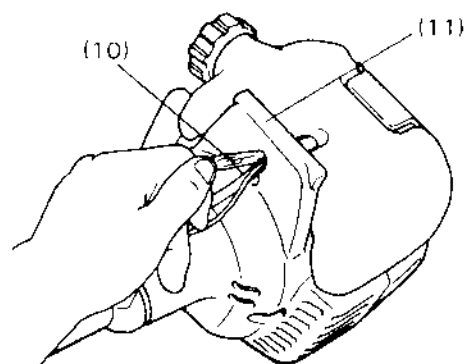
- After making sure that the drive shaft is installed fully and properly, tighten the screws M5×18 to secure the drive shaft.



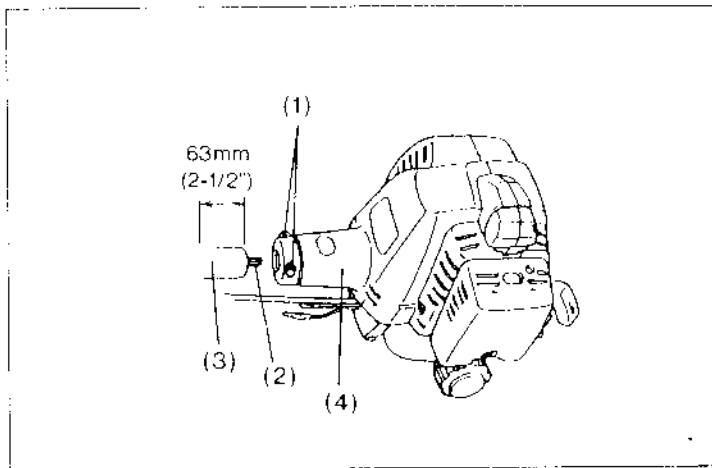
- Connect the throttle wire and firmly close the cable joint.
- Squeeze the throttle lever to make sure that the throttle wire moves smoothly.
- Connect the switch cords to the two cords from the engine by inserting one into the other.



- Wrap the waist pad around the drive shaft so that the hanger (7) will protrude through the slit in the waist pad and the throttle wire and the cords (9) will also be wrapped under the waist pad (8).



- Insert the bullet connectors (10) through the holes in the cover (11)



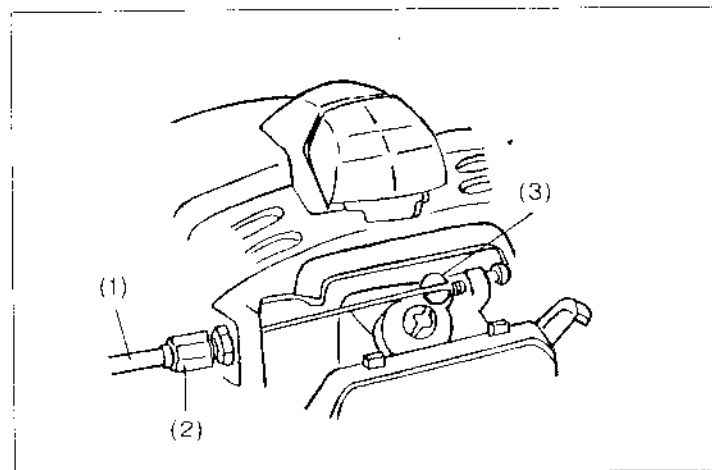
For machines with Loop handle (CEN)

- Loosen the screws M5×18 and insert the drive shaft into the holder case.

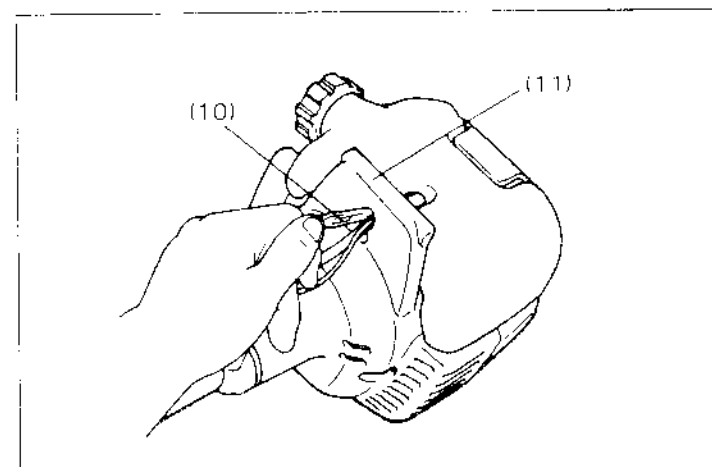
(Note)

Always insert the drive shaft into the holder case fully (approx. 63 mm; 2-1/2"). If the inner shaft resists full insertion of the drive shaft, try to insert it again after slightly rotating the drive shaft or the support washer on the gear case to match the inner shaft to the hole inside the holder case.

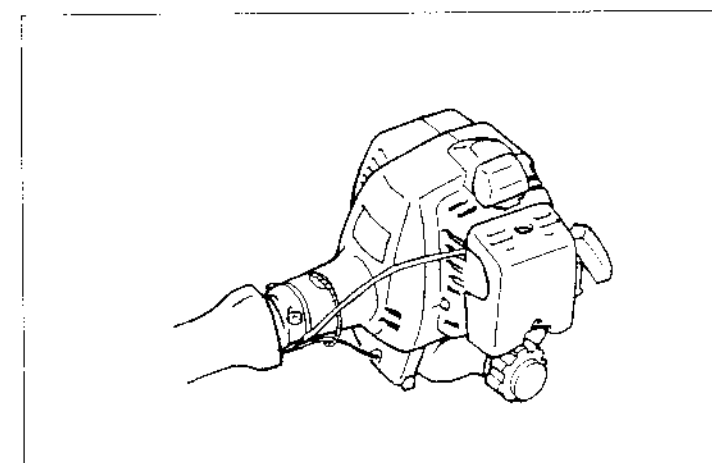
- After making sure that the drive shaft is installed fully and properly, tighten the screws M5×18 to secure the drive shaft.



- Remove the air cleaner cover from the carburetor.
- Insert throttle wire (1) through adjusting screw (2) and fit the nipple of the throttle wire into swivel (3) of the carburetor.
- Adjust the adjusting screw to take up free play of the throttle wire ensuring the throttle is fully opened when the throttle lever is in high speed position and 2 – 3 mm (0.079" – 0.118") free play when in low speed position.
- Connect the female and male bullet connectors from the throttle assembly to the male and female bullet connectors coming from engine.
- Retouch the air cleaner cover.



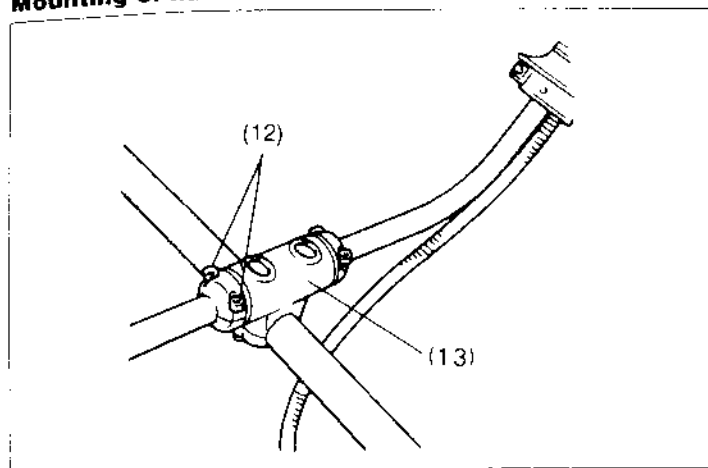
- Insert the bullet connectors (10) through the holes in the cover (11).



- Fix the earth code in the holder case with the attached wire clamp.
- Take care that the connector does not come off.

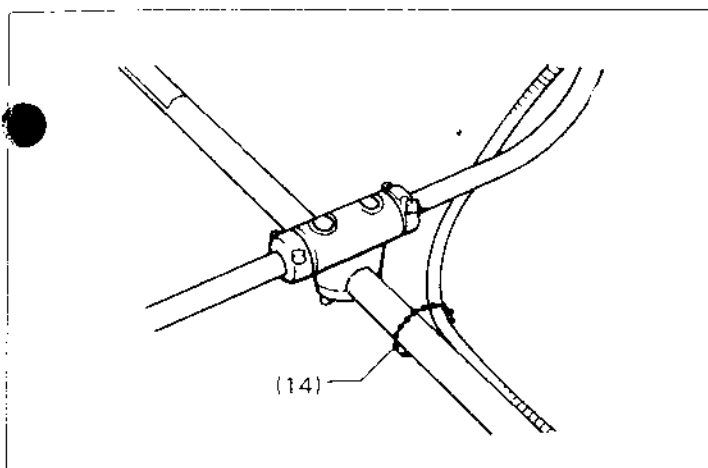


Mounting of handle

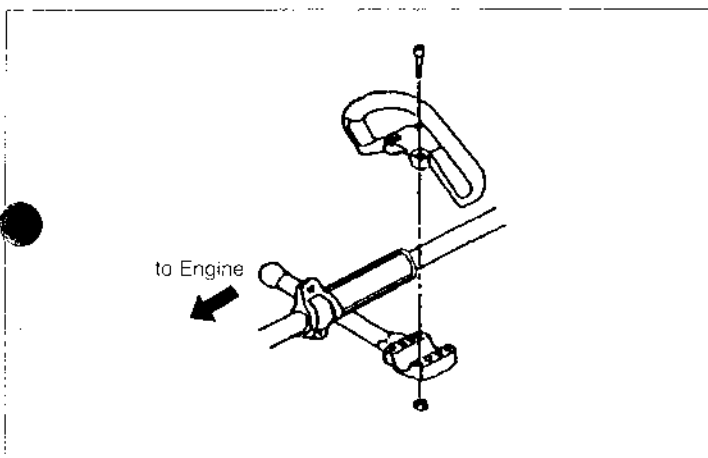


For machines with U handle

- Loosen the handle installation bolts (12).
- Insert the handle into the handle joint (13) fully.
- After making sure that the handle is installed properly, tighten the installation bolts (12) to secure the handle.

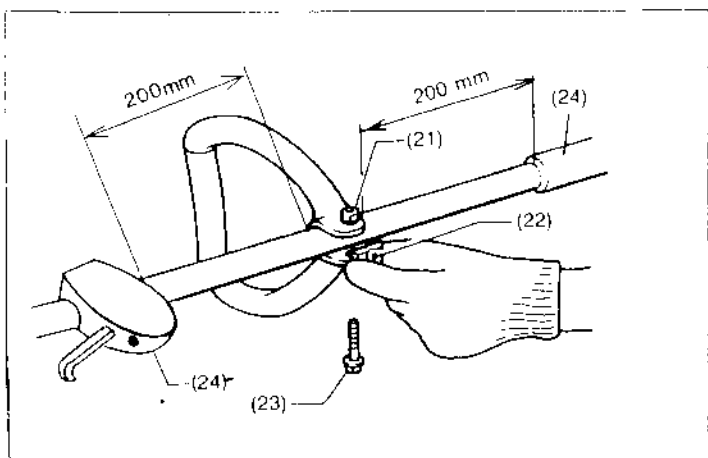


- Secure the throttle wire with the clip wire (20) as shown in the figure for easy operation.



For machines with Loop Handle models

- Fix a barrier to the left side of the machine together with the handle for operator's protection.
- Do not adjust position of the loop handle too close to the control grip. Keep not less than 250mm distance between the handle and the grip. (a distance collar is provided for this purpose.)



For machine with Loop handle

- Attach the handle to the shaft.
- Install the handle joint (22) on the handle. Insert the installation bolt M6 x 45 (23) through the hole in the handle. Semitighten the installation bolt M6 x 45 (23).
- Adjust the handle to the desired position over 200 mm away from the rear grip (24) and tighten the installation bolt M6 x 45 (23).

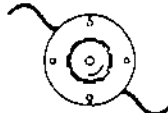
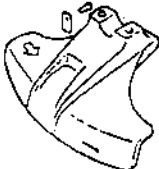
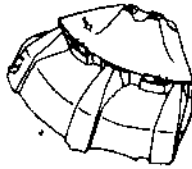
Mounting of protector

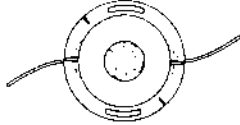
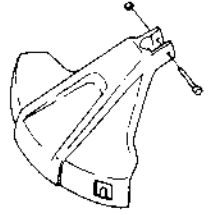
To meet the applicable safety provisions, only the tool/protector combination as indicated in the table must be used.

MS-220, MS-250, MS-2200, MS-2500		
Star Blade	Protector for Metal Cutter Blade	Protector for Metal Blade (Guard Specifications for Both Metal Blade and Cord Cutter)
		
Grass-Pasture Part No. 6208501400	Part No. 6258028002	Part No. 6198004003 (MS-220, MS-250) 6258061001 (MS-2200, MS-2500)

Be sure to use genuine MAKITA cutter blade or nylon cutting head.

- The cutter blade must be well polished, free of cracks or breakage. If the cutter blade hits against a stone during operation, stop the engine and check the blade immediately.
- Polish or replace the cutter blade every three hours of operation.
- The outside diameter of the cutter blade must be 230 mm (9-1/16"). Never use any blades surpassing 230 mm (9-1/16") in outside diameter.

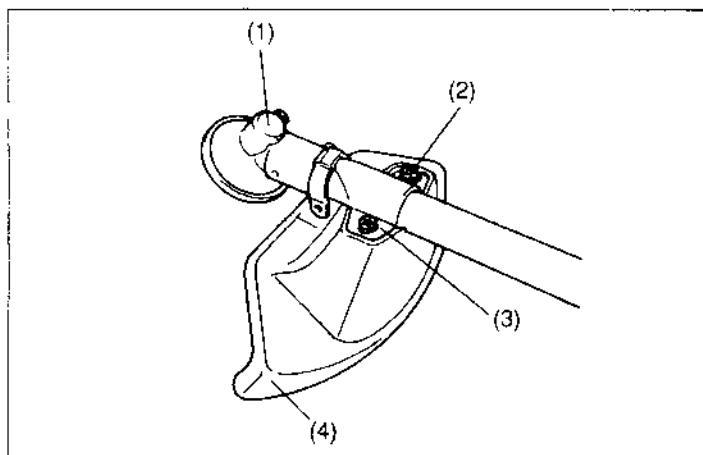
MS-221, MS-251, MS-2201, MS-2501		
Nylon Cutting Head	Protector for Nylon Cutting Head	Protector for Nylon Cutting Head (Guard specifications for both metal blade and cord cutter)
		
Part No. 6218015001	Part No. 6218008003	Part No. 6198007001 (MS-221, MS-251) 6258060001 (MS-2201, MS-2501)

LT-250	
Nylon cutting head	Protector for nylon cutting head
	
Part No. 6168011001	Part No. 6168006001



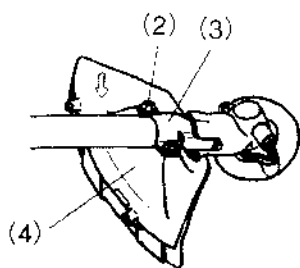
CAUTION:

The appropriate protector must always be installed, for your own safety and in order to comply with accident-prevention regulations. Operation of the equipment without the guard being in place is not permitted.



For MS-2200, MS-2500, MS-2201, MS-2501 MS-220, MS-250, MS-221, MS-251

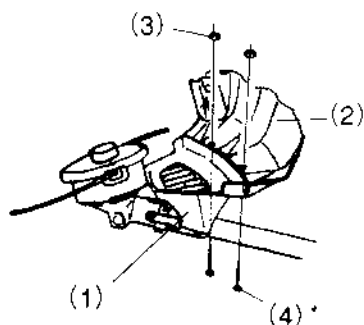
- Install the clamp (3) on the drive shaft so that the projection of the clamp (3) is inserted into the opening between the gear case (1) and the shaft.
- Secure the protector (4) with the installation bolts M6 x 30 (2).



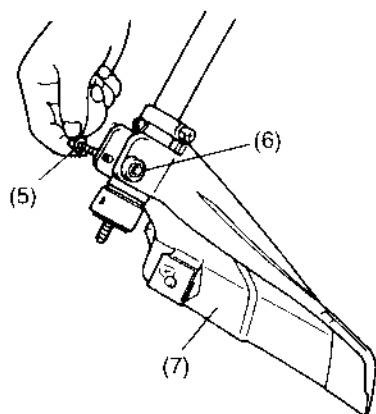
In case of guard specifications for both metal blade and cord cutter

- When using the metal blade, install the protector (4) onto the clamp (3) with two M6x30 bolts (2).

Note : Tighten the right and left bolts evenly so that the gap between the clamp (3) and the protector (4) will be constant.
Otherwise, the protector sometimes may not function as specified.



- When using the cord cutter, insert the protector (2) into the protector (1), and tighten with 2 screws (4) and two nuts (3).



For LT-250

- Attach the protector (7) to the shaft.
- Insert the nut M6 (6) into the hex hole in the protector (7).
- Secure the protector with the installation bolt M6 x 45 (5).

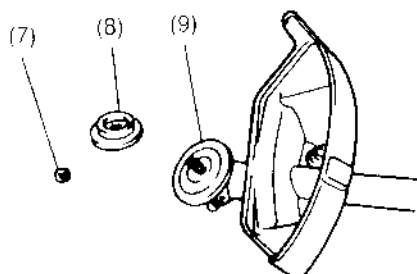
NOTE:

Do not tighten the installation bolt M6 x 45 (5) excessively.



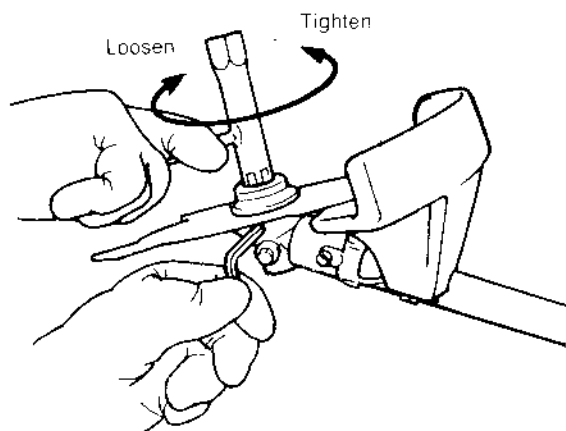
Mounting of cutter blade or nylon cutting head

Turn the machine upside down, and you can replace the cutter blade or the nylon cutting head easily.



For MS-220, MS-221, MS-250, MS-251 MS-2200, MS-2500, MS-2201, MS-2501

- Insert the hex wrench through the hole in the gear case and rotate the support washer (9) until it is locked with the hex wrench (or the shaft is locked).
- Loosen the nut (left-handed) with the socket wrench and remove the nut (7), and tightening washer (8).



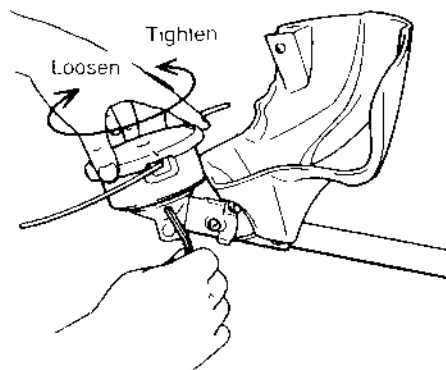
For MS-220, MS-250, MS-2200, MS-2500

- Mount the cutter blade onto the shaft so that the guide of the support washer fits in the arbor hole in the cutter blade. Install the tightening washer and secure the cutter blade with the nut. (Tightening torque: 130 — 230 kg-cm)

NOTE:

Always wear grooves when handling the cutter blade.

The cutter blade-fastening nut (with spring washer) is a consumable part. If there appears any wear or deformation on the spring washer, replace the nut.

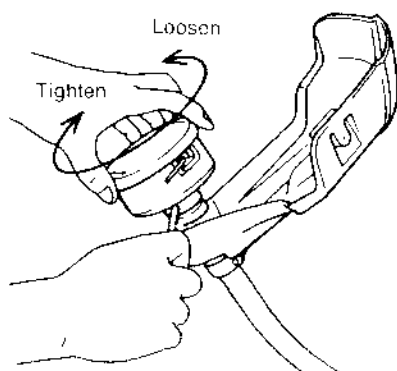


For MS-221, MS-251, MS-2201, MS-2501

- Screw the nylon cutting head onto the shaft.

NOTE:

The tightening washer, and nut are not necessary for mounting the nylon cutting head.



For LT-250

- Insert the screwdriver provided through the hole in the head case and rotate the support washer until it is locked with the screwdriver (or the shaft is locked).
- Screw the nylon cutting head onto the shaft.

Fuel / Refuelling



Observe the Safety Instructions on page 31

Handling fuel

Utmost care is required when handling fuel. Fuel may contain substances similar to solvents. Refuel either in a well ventilated room or outdoors. Do not inhale fuel vapors, avoid any contact of fuel or oil with your skin. Mineral oil products degrease your skin. If your skin comes in contact with these substances repeatedly and for an extended period of time, it will desiccate. Various skin diseases may result. In addition, allergic reactions are known to occur. Eyes can be irritated by contact with oil. If oil comes into your eyes, immediately wash them with clear water. If your eyes are still irritated, see a doctor immediately!

Fuel and oil mixture

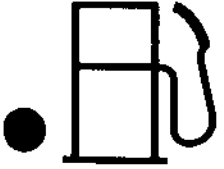
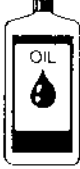
The engine of the brush cutter or grass trimmer is a high-efficiency two-stroke engine. It is run with a mixture of fuel and two-stroke engine oil.

The engine is designed for unleaded regular fuel with a min. octane value of 91 RON. In case no such fuel is available, you can use fuel with a higher octane value. This will not affect the engine, but may cause poor operating behaviour.

A similar situation will arise from the use of leaded fuel. To obtain optimum engine operation and to protect your health and the environment, only unleaded fuel should be used!

For lubricating the engine use a two-stroke engine oil (quality grade: TC-3), which is added to the fuel. The engine has been designed for use of DOLMAR two-stroke engine oil and a mixture ratio of only 50 : 1 to protect the environment. In addition, a long service life and a reliable operation with a minimum emission of exhaust gases is guaranteed.

It is absolutely essential to observe a mixture ratio of 50 : 1 (DOLMAR 2-stroke engine oil) as otherwise reliable function of the brush cutter or grass trimmer cannot be guaranteed.

Gasoline	50 : 1	25 : 1
	+	
1,000 cm ³ (1 liter)	20 cm ³	40 cm ³
5,000 cm ³ (5 liter)	100 cm ³	200 cm ³
10,000 cm ³ (10 liter)	200 cm ³	400 cm ³

The correct mixture ratio

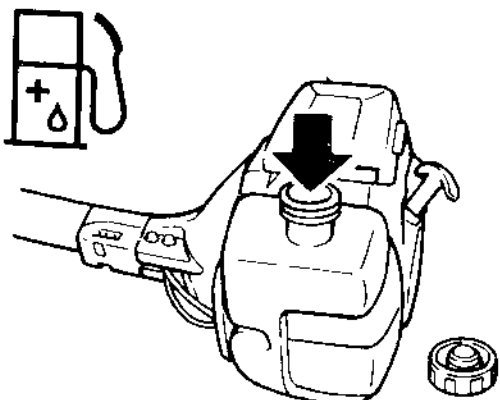
Gasoline:DOLMAR genuine two-stroke engine oil 50:1 or
Gasoline:Other manufacturer's two-stroke engine oil 25:1
recommended

NOTE:

For preparing the fuel-oil mixture first mix the entire oil quantity with half of the fuel required, then add the remaining fuel. Thoroughly shake the mixture before filling it into the brush cutter or grass trimmer tank.

It is not wise to add more engine oil than specified to ensure safe operation. This will only result in a higher production of combustion residues which will pollute the environment and clog the exhaust channel in the cylinder as well as the muffler. In addition, the fuel consumption will rise and the performance will decrease.

Refuelling



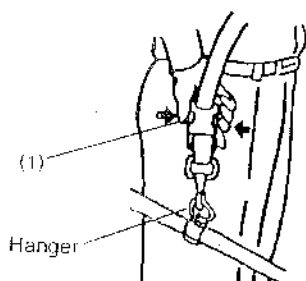
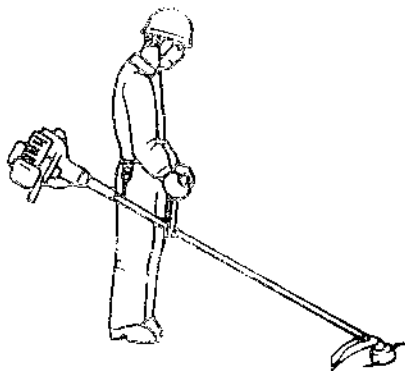
The engine must be switched off!

- Thoroughly clean the area around the plugs, to prevent dirt from getting into the fuel tank.
- Unscrew the plug and fill the tank with fuel as the case may be.
- Tightly screw on the plug.
- Clean screw plug and tank after refuelling!

Storage of fuel

Fuel cannot be stored for an unlimited period of time. Purchase only the quantity required for a 4 week operating period. Only use approved fuel storage containers.

Proper handling of machine



Attachment of shoulder strap

- Adjust the strap length so that the cutter blade or the nylon cutting head will be kept parallel with the ground.

Detachment

- In an emergency, push the notches (1) at both sides, and you can detach the machine from you.
- Be extremely careful to maintain control of the machine at this time.
- Do not allow the machine to be deflected toward you or anyone in the work vicinity.

WARNING: Failure to maintain complete control of the machine at all could result in serious bodily injury or DEATH.

WARNING:

Failure to maintain complete control of the machine at all could result in serious bodily injury or DEATH.

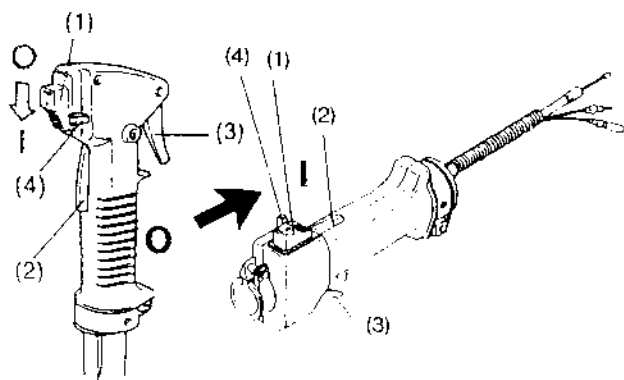
Putting into operation

Observe the applicable accident prevention regulations!



Starting

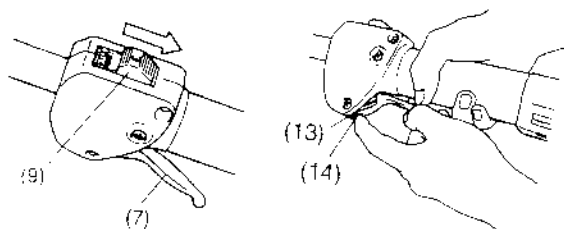
Move at least 3 m away from the place of refuelling. Place the brush cutter or grass trimmer on a clear piece of ground taking care that the cutting tool does not come into contact with the ground or any other objects.



Cold start

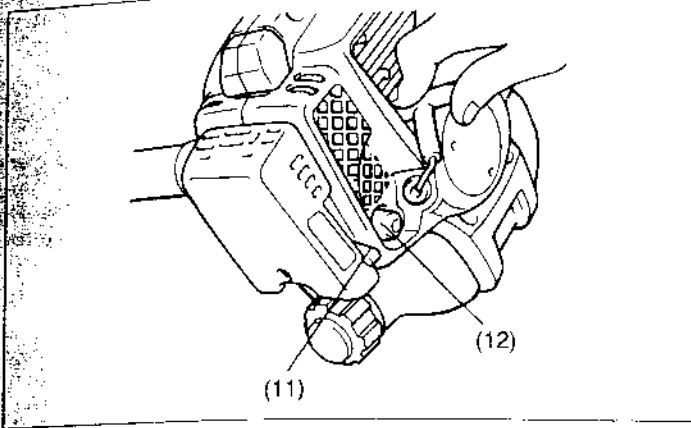
For machine with U Handle

- Push the stop switch (1) in the direction shown by the arrow.
- Grasp the handle (hand pressure activates the safety lock) (5).
- Press the throttle lever (6) and hold it down.
- Press the lock button (4) and release the throttle lever, and then release the lock button (the lock button holds the throttle lever in the start-up position).

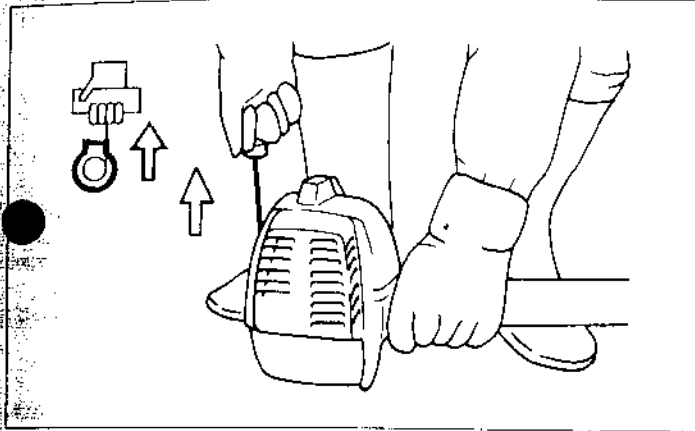


For machine with loop handle

- Push the stop switch (9) in the direction shown by the arrow.
- Squeeze the throttle lever (7) fully.
- Hook the lock fin (14) to the notch (13) in the throttle lever while releasing the throttle lever.



- First place the machine on the ground.
- Give a gentle push on the primer pump (12) repeatedly (7 - 10 times) until fuel comes into the primer pump.
- Move the choke lever (11) to the top position ().



- Firmly hold the holder case by your left hand as illustrated.
- Slowly withdraw the starter grip until resistance is felt and continue with a smart pull.
- Do not pull out the starter rope to its full extent and do not allow the starter handle to be retracted without control, but ensure that it is retracted slowly.
- Repeat the starting operation until initial ignitions are heard.
- Depress the choke lever () and pull the starter rope again until the engine starts.
- As soon as the engine starts, immediately tap and release the throttle, thus releasing the half-throttle lock so that the engine can run in idle.
- Run the engine for approximately one minute at a moderate speed before applying full throttle.

Caution during operation:

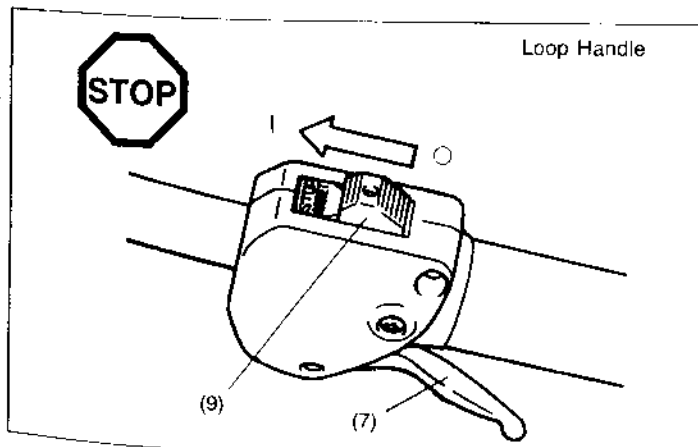
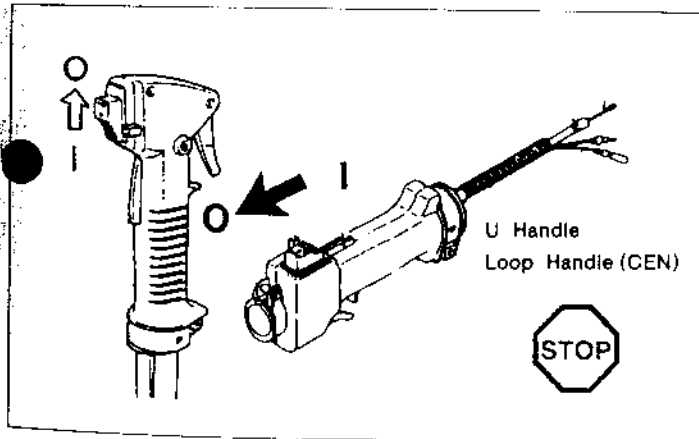
If the throttle lever is opened fully in a no-load operation, the engine rotation is increased to 10,000 rpm or more. Never operate the engine at a higher speed than required and at an approximate speed of 6,000 - 8,000 rpm.

Starting the warm engine

- As described above except without moving the choke lever (choke lever remains in the down position ()).

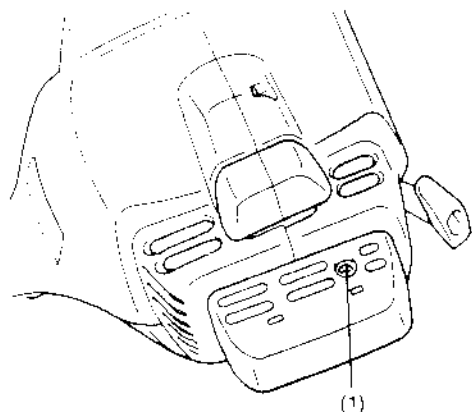
Stopping

- Release the throttle lever (6), (7) fully, and when the engine rpm has lowered, push the stop switch (1), (9) to "STOP" position. Engine will stop.



Idle adjustment

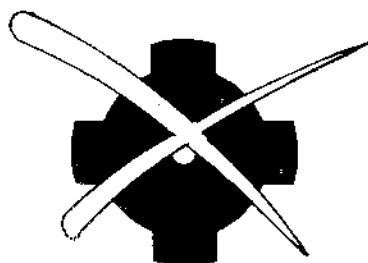
The cutter blade or the nylon cutting head should not run when the throttle lever is fully released. If necessary, adjust the idle rpm using the idle adjusting screw.



Checking the idling speed

- Idle speed should be set to 2,600 rpm.
If necessary correct it by means of the idle screw (the blade or the string cutting head must not turn when the engine is on idle). Screwing in of the screw (1) will cause an increase in the engine speed, whereas backing off of the screw will reduce the engine speed.

Resharpener the cutting tool



CAUTION:

The cutting tools mentioned below must only be resharpened by an authorized facility. Manual resharpening will result in imbalances of the cutting tool causing vibrations and damage to the equipment.

• Star blade

An expert resharpening and balancing service is provided by Authorized Service Agent.

NOTE:

To increase the service life of the star blade it may be turned over once until both cutting edges have become blunt.

Nylon cutting head

The nylon cutting head is a dual grass trimmer head capable of both automatic and bump & feed mechanisms.

The nylon cutting head will automatically feed out the proper length of nylon cord by the changes in centrifugal force caused by increasing or decreasing rpms. However, to cut soft grass more efficiently, bump the nylon cutting head against the ground to feed out extra cord as indicated under operation section.

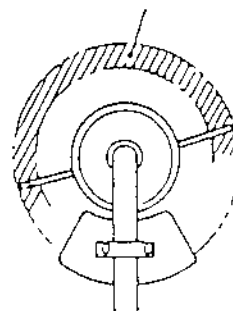
Operation

- Increase the nylon cutting head speed to approx. 6,000 rpm. Low speed (under 4,800 rpm) is not suitable, the nylon cord will not feed out properly at low speed.
- The most effective cutting area is shown by the shaded area.

if the nylon cord does not feed out automatically, proceed as follows:

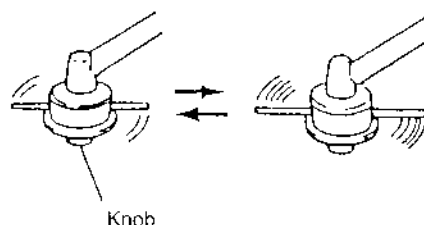
1. Release the throttle lever to run the engine idle and then squeeze the throttle lever fully. Repeat this procedure until the nylon cord feeds out to the proper length.
2. If the nylon cord is too short to feed out automatically with the above procedure, bump the knob of the nylon cutting head against the ground to feed out the nylon cord.
3. If the nylon cord does not feed out with procedure 2, rewind/replace the nylon cord by following the procedures described under "Replacing the nylon cord"

Most effective cutting area



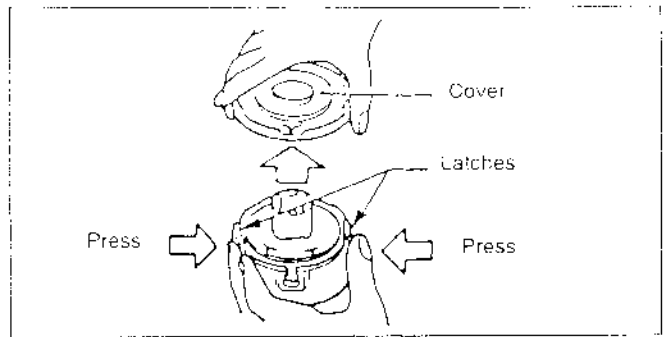
Idle speed

Full speed

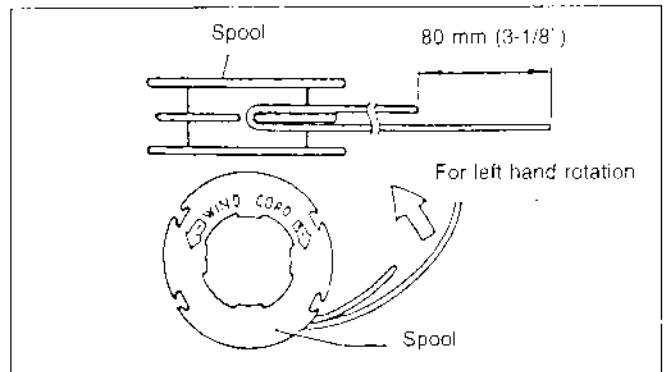


Replacing the nylon cord

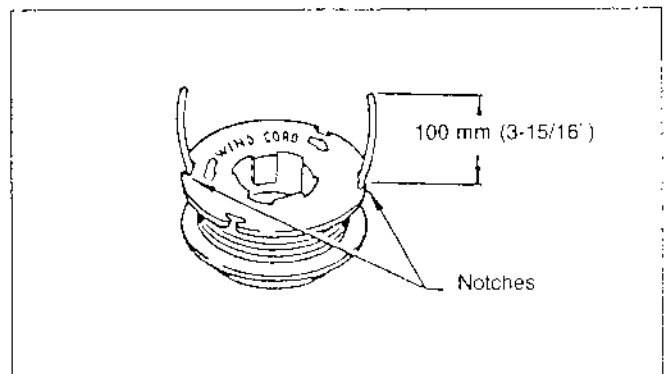
- First, stop the engine.
- Press on the housing latches inward to lift off the cover; then remove the spool.



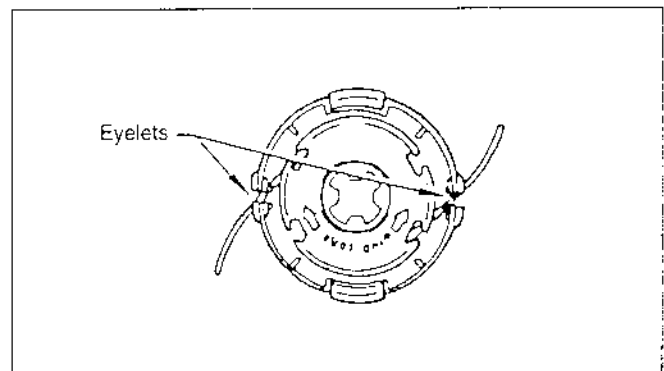
- Hook the center of new nylon cord into the notch in the center of the spool, with one end of the cord extending about 80 mm (3-1/8") more than the other. Then wind both ends firmly around the spool in the direction of the head rotation (left-hand direction indicated by LH and right-hand direction by RH on the side of the spool).



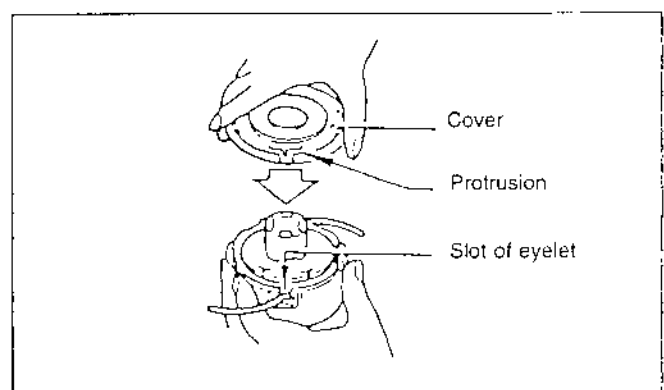
- Wind all but about 100 mm (3-15/16") of the cords, leaving the ends temporarily hooked through a notch on the side of the spool.



- Mount the spool in the housing so that the grooves and protrusions on the spool match up with those in the housing. Keep the side with letters on the spool visible on the top. Now, unhook the ends of the cord from their temporary position and feed the cords through the eyelets to come out of the housing.



- Align the protrusion on the underside of the cover with the slots of the eyelets. Then push the cover firmly onto the housing to secure it.



Servicing instructions**CAUTION:**

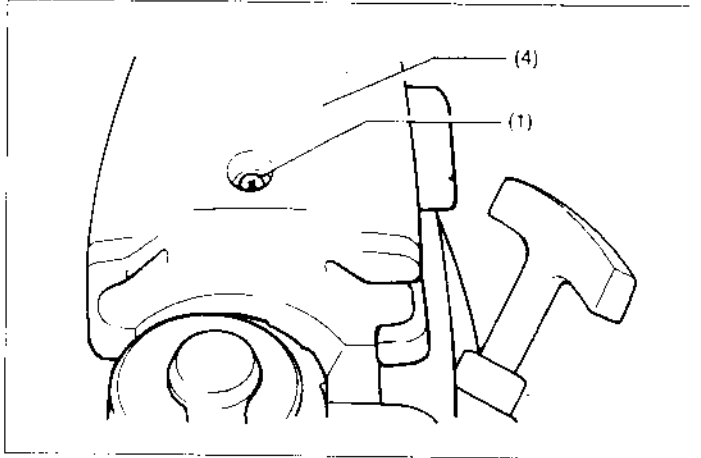
Before doing any work on the brush cutter or grass trimmer, always switch off the motor and pull the plug cap off the spark plug (see "Checkup of spark plug").

Always wear protective gloves!

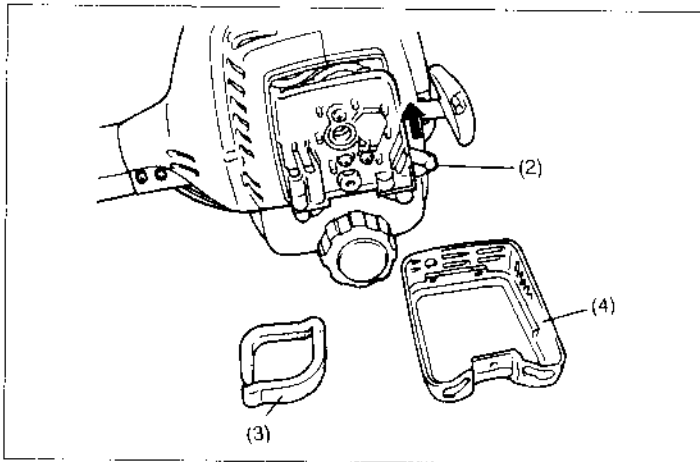
To ensure a long service life and to avoid any damage to the equipment, the following servicing operations should be performed at regular intervals.

Daily checkup and maintenance

- Before operation, check the machine for loose screws or missing parts. Pay particular attention to the tightness of the cutter blade.
- Before operation, always check for clogging of the cooling air passage and the cylinder fins. Clean them if necessary.
- Perform the following work daily after use:
 - Clean the brush cutter or the grass trimmer externally and inspect for damage.
 - Clean the air filter. When working under extremely dusty conditions, clean the filter the several times a day.
 - Check the blade or the nylon cutting head for damage and make sure it is firmly mounted.
 - Check that there is sufficient difference between idling and engagement speed to ensure that the cutting tool is at a standstill while the engine is idling (if necessary reduce idling speed).
- If under idling conditions the tool should still continue to run, consult your nearest Authorized Service Agent.
- Check the functioning of the stop switch, the lock-off lever, the throttle lever, and the lock button.

Cleaning of air cleaner

- Unscrew screw (1).
- Remove the air cleaner cover.

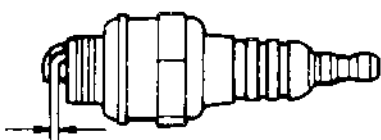


- Push the choke lever (2) up (arrow) to prevent dirt particles from entering the carburetor.
- Remove the sponge element (3). Wash it with lukewarm water and then dry it thoroughly.
- After cleaning the air cleaner, install the air cleaner cover (4) and tighten the screw (1) to secure.

NOTE:

If there is excessive dust or dirt adhering to the air cleaner, clean it every day. A clogged air cleaner may make it difficult or impossible to start the engine or increase the engine rotational speed.

Checkup of spark plug



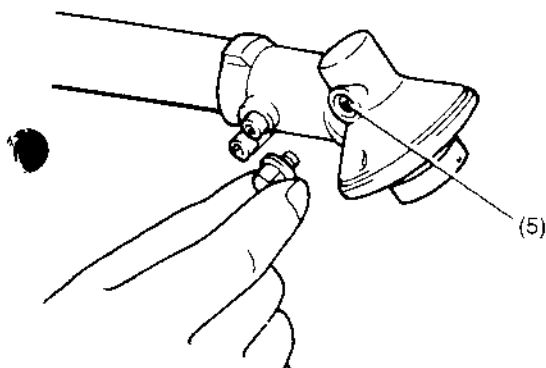
0.6 mm - 0.7 mm
(.024" - .028")

- Only use the supplied universal wrench to remove or to install the spark plug.
- The gap between the two electrodes of the spark plug should be 0.6 to 0.7 mm (0.024" - 0.028"). If the gap is too wide or too narrow, adjust it. If the spark plug is clogged with carbon or fouled clean it. Thoroughly or replace it.

CAUTION:

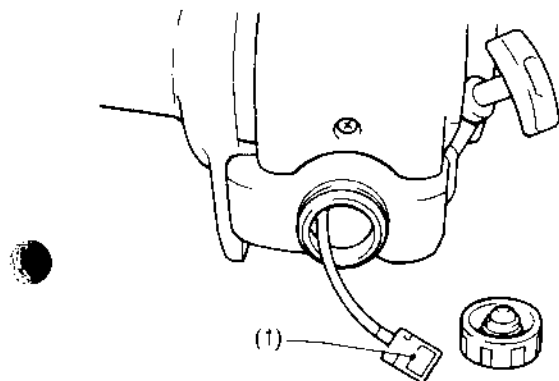
Never touch the spark plug connector while engine is running. (danger of high voltage electric shock)

Supply of grease to gear case



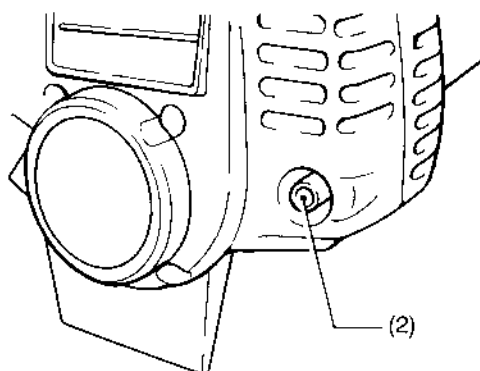
- Supply grease (Shell Alvania No. 3 or equivalent) to the gear case through the grease hole (5) every 30 hours. (Genuine DOLMAR grease may be purchased from your DOLMAR dealer.)

Suction head in the fuel tank



- The felt filter (1) of the suction head is used to filter the fuel required by the Carburetor.
- A periodical visual inspection of the felt filter is to be conducted. For that purpose open the tank cap, use a wire hook and pull out the suction head through the tank opening. Filters found to have hardened, been polluted or clogged up are to be replaced.
- Insufficient fuel supply can result in the admissible maximum speed being exceeded. It is therefore important to replace the felt filter at least quarterly to ensure satisfactory fuel supply to the Carburetor.

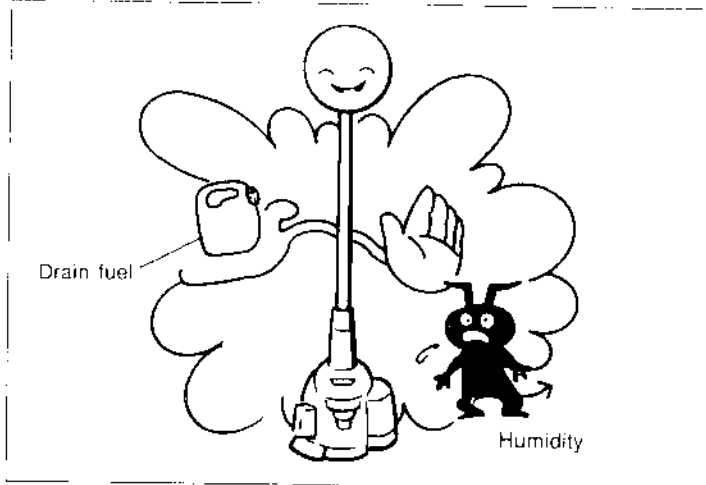
Cleaning of muffler exhaust port



- Check of muffler exhaust port (2) regularly.
- If it is clogged by carbon deposits, carefully scratch the deposits out with a suitable tool.

Any maintenance or adjustment work that has not been included and described in this manual is only to be performed by Authorized Service agent.

Storage



- When keep the machine in storage for a long time, drain fuel from the fuel tank and carburetor, as follows: Drain all fuel from the fuel tank.
- Remove the spark plug and add a few drops of oil into the spark plug hole. Then, pull the starter gently confirm that oil fills the cylinder. Then, pull the starter gently confirm that oil fills the cylinder and tighten the spark plug.
- Clear dirt or dust from the cutter blade and outside of engine, wipe them with a oil-immersed cloth and keep the machine at a place as dry as possible.

Maintenance schedule

General	Engine assembly screws and nuts	Visual inspection for damage and tightness Check for general condition and security
After each refuelling	Throttle lever Safety lock key STOP-switch	Functional check Functional check Functional check
Daily	Air filter Cooling air duct Cutting tool Idling speed	To be cleaned To be cleaned Check for damage and sharpness Inspection (cutting tool must not move)
Weekly	Spark plug Muffler	Inspection, replace if necessary Check and if necessary clean the opening
Quarterly	Suction head Fuel tank	To be replaced To be cleaned
Shutting down procedure	Fuel tank Carburetor	Empty fuel tank Operate until engine runs out of fuel

Fault location

Fault	System	Observation	Cause
Engine not starting or under difficulties	Ignition system	Ignition spark existing	Fault in fuel supply- or compression system, mechanical defect
		No ignition spark	STOP-switch operated, wiring fault or short circuit, spark plug or connector defective, ignition module faulty
	Fuel supply	Fuel tank filled	Incorrect choke position, carburetor defective, suction head dirty, fuel supply line bent or interrupted
	Compression	Inside of engine	Cylinder bottom gasket defective, crankshaft seals damaged, cylinder or piston rings defective
		Outside of engine	Improper sealing of spark plug
Warm start problems	Mechanical fault	Starter not engaging	Broken starter spring, broken parts inside of the engine
		Tank filled Ignition spark existing	Carburetor contaminated, have it cleaned
Engine starts but dies immediately	Fuel supply	Tank filled	Incorrect idling adjustment, suction head or carburetor contaminated
			Fuel tank vent defective, fuel supply line interrupted, cable or STOP-switch faulty
Insufficient performance	Several systems may simultaneously be affected	Engine idling	Air filter contaminated, carburetor contaminated, muffler clogged, exhaust duct in the cylinder clogged



DOLMAR GmbH
Postfach 70 04 20
D-22004 Hamburg
Germany